Amendments to the Claims

The following listing of claims replaces all prior versions and listings of claims in this application:

1. (Original) Solid cellular hydrocolloid carriers comprising dried hydrocolloid beads comprising viable microorganisms entrapped therein, wherein the dried beads have a residual moisture of no more than 20%.

2. (Original) The solid cellular carriers according to claim 1, wherein the residual moisture is no more than 12%, the dried beads have a desired microporosity and the microorganisms are entrapped in the microporosity of the dried beads.

3. (Original) The solid cellular carriers according to claim 2, wherein the dried beads are obtained by freeze drying a hydrocolloid gel that contains the viable microorganisms.

4. (Original) The solid cellular carriers according to claim 3, wherein the hydrocolloid further comprises a cryoprotectant in an amount effective to assist in maintaining the viability of the microorganisms during freeze drying.

5. (Original) The solid cellular carriers according to claim 4, wherein the cryoprotectant is glycerol in an amount of 10 to 50 % by weight of the hydrocolloid.

6. (Original) The solid cellular carriers according to claim 4, wherein the viability of the microorganisms is not less than 50% to 95% after 12 to 36 months of storage as a dried solid, at temperatures at or below -18°C.

7. (Original) The solid cellular carriers according to claim 1, wherein exposure to moisture induces growth of the entrapped microorganism within the hydrocolloid beads.

8. (Original) The solid cellular carriers according to claim 1, wherein exposure to moisture induces extended release into the environment of either the entrapped microorganisms or active products produced by the microorganisms.

9. (Original) The solid cellular carriers of claim 1, wherein the hydrocolloid is an alginate, agarose, Low Methoxy Pectin (LMP), polyvinyl alcohol (PVA), Carrageenan or xanthan plus locust bean gum (LBG).

10. (Original) The solid cellular carriers of claim 9, wherein the hydrocolloid is alginate.

11. (Original) The solid cellular carriers of claim 9, wherein the hydrocolloid carriers are biodegradable.

12. (Original) The solid cellular carriers of claim 1, wherein the microorganisms are bacteria or fungi capable of controlling plant pathogens.

13. (Original) The solid cellular carriers of claim 12, wherein the microorganisms are fungi selected from the group consisting of *Trichoderma harzianum, Trichoderma lignorum* and *Trichoderma viride.*

14. (Original) The solid cellular carriers of claim 12, wherein the microorganisms are bacteria capable of controlling plant pathogens.

15. (Original) The solid cellular carriers of claim 14, wherein the bacteria are selected from the group consisting of *Pantoae agglomerans, Serratia marcescens, Bacillus Spp., Enterobacter Spp., Azotobacter, Azospirillum* and *Pseudomonas.*

16. (Original) The solid cellular carriers of claim 8, wherein the active products produced by the microorganisms are enzymes or antibiotics selected from the group consisting of chitinase, gluconases, proteases, pyrolnitrin, pyrolniteorin, phenazines, DAPG (2,4,diacetylfluoroglucinol), ferrichrome A and desferrioxamine B.

17. (Original) The solid cellular carriers of claim 1, wherein the dried beads are obtained by vacuum drying, fluidized bed drying or air drying a hydrocolloid gel that contains the viable microorganisms.

18. (Original) The solid cellular carriers of claim 1, further comprising one or more of nutrients, fillers, agents for controlling the porosity of the carriers, agents that prevent damage to the viable microorganisms during freezing, or agents that control cell wall thickness.

19. (Original) The solid cellular carriers of claim 18, wherein the nutrients or fillers are selected from the group consisting of chitin, pectin, cellulose, lignin, bentonite, kaolin, starch, glycerol and lowfat milk.

20. (Original) The solid cellular carriers of claim 14, wherein the plant pathogens are selected from the group consisting of *Pythium aphanidermatum, S. scabies, Verticillium dahliae, Verticillium albo-atrum, Fusarium solani, Rhizoctonia*

solani, Cylindrocladium floridanum, Clavibacter michiganense subsp. sepidonicum, Phytophthora megasperma pv. glycinea race 1, Pythium spp., Septoria spp. and *Sclerotinia.*

21. (Original) The solid cellular carriers of claim 1, wherein the dried hydrocolloid beads have diameters of between several microns to several hundred microns.

22. (Currently Amended) A method for controlling plant pathogens in an agricultural crop which comprises: applying solid cellular carriers comprising dried hydrocolloid beads according to claim 1 and having viable microorganisms entrapped therein to an entity selected from seeds, seedlings or plants of an agricultural crop wherein the microorganisms or active products produced by the microorganisms are eventually released from the beads to effectively control plant pathogens.

23. (Original) The method of claim 22, wherein the hydrocolloid is an alginate, agarose, Low Methoxy Pectin (LMP), polyvinyl alcohol (PVA), Carrageenan and xanthan plus locust bean gum (LBG), and which further comprises contacting the beads to moisture to induce extended release into the surrounding environment of either the entrapped microorganisms or active products produced by the microorganisms.

24. (Original) The method of claim 23, wherein said hydrocolloid is alginate.

25. (Original) The method of claim 23, which further comprises forming the beads by freeze-drying, vacuum drying, fluidized bed drying or air drying a hydrocolloid gel that contains the viable microorganisms.

26. (Original) The method of claim 22, wherein the microorganisms are bacteria or fungi capable of controlling plant pathogens.

27. (Original) The method of claim 26, wherein said fungi are selected from the group consisting of *Trichoderma harzianum, Trichoderma lignorum* and *Trichoderma viride.*

28. (Original) The method of claim 26, wherein said bacteria are selected from the group consisting of *Pantoae agglomerans, Serratia marcescens, Bacillus Spp., Enterobacter Spp., Azotobacter, Azospirillum* and *Pseudomonas.*

29. (Original) The method of claim 22, wherein the active products produced by the microorganisms are enzymes or antibiotics selected from the group consisting of chitinase, gluconases, proteases, pyrolnitrin, pyrolniteorin, phenazines, DAPG (2,4,diacetylfluoroglucinol), ferrichrome A and desferrioxamine B.

30. (Original) The method of claim 22, which further comprises forming the beads by freeze-drying, wherein the hydrocolloid gel further comprises a cryoprotectant in an amount effective to assist in maintaining the viability of the microorganisms during the freeze drying.

31. (Currently Amended) A method of producing the cellular solid carriers according to claim 1 ~~comprising dried hydrocolloid beads and viable microorganisms entrapped therein~~ comprising:

mixing a hydrocolloid solution with viable microorganisms;

adding a cryoprotectant to the hydrocolloid solution and microorganisms to form a mixture; and

drying the mixture under conditions which preserve the porosity of the mixture, thereby forming dried cellular solid hydrocolloid beads comprising viable microorganisms entrapped in the porosity of the beads.

32. (Original) The method of claim 31, wherein the drying is freeze-drying, vacuum drying, fluidized bed drying or air drying.

33. (Original) The method of claim 31, wherein the hydrocolloid is an alginate, agarose, Low Methoxy Pectin (LMP), polyvinyl alcohol (PVA), Carrageenan or xanthan plus locust bean gum (LBG).

34. (Original) The method of claim 31, which further comprises adding to the mixture one of more of nutrients, fillers, agents for controlling the porosity of the beads, agents that prevent damage to the viable microorganisms during freezing, or agents that control cell wall thickness.

35. (Original) The method of claim 34, wherein the nutrients or fillers are selected from the group consisting of chitin, pectin, cellulose, lignin, bentonite, kaolin, starch, and lowfat milk.

36. (Currently Amended) A method of increasing the viability of biological control microorganisms in field conditions ~~comprising~~ which comprises entrapping the

biological control microorganisms as the viable microorganisms within the solid cellular carriers according to claim 1 ~~comprising dried hydrocolloid beads~~ prior to the application of the microorganisms to the agricultural field, thereby increasing the viability of biological control microorganisms in field conditions.

37. (Original) The method of claim 36, wherein the beads further comprise a cryoprotectant.

38. (Original) The method of claim 36, wherein the hydrocolloid is an alginate, agarose, Low Methoxy Pectin (LMP), polyvinyl alcohol (PVA), Carrageenan or xanthan plus locust bean gum (LBG).

39. (Original) The method of claim 36, wherein the biological control microorganisms are bacteria or fungi.

40. (Original) The method of claim 36, wherein the solid cellular carriers comprising hydrocolloid beads protect the biological control microorganisms against UV radiation.